SEQUENCE LISTING

<110> ENDOCUBE SAS
      CENTRE NATIONAL DE LA RECHERCHE SCIENTIQUE - CNRS
      UNIVERSITY OF OSLO
      GIRARD, Jean-Philippe
      AGUILAR, Luc
      ERARD, Monique
      HARALDSEN, Guttorm
      BAEKKEVOLD, Espen
      VAEGER, Marjan
      BRANDTZAEG, Per

<120> NF-HEV COMPOSITIONS AND METHODS OF USE

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<150> US 60/435827
<151> 2002-12-19

<160> 49

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<213> Homo sapiens

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<213> Mus musculus

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<213> Canis familiaris

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<211> 270
<212> PRT
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<213> Homo sapiens

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Gln Gln Lys Ala Lys Glu Val Cys Pro Met Tyr Phe Met Lys Leu Arg
            35   40   45
Ser Gly Leu Met Ile Lys Lys Glu Ala Cys Tyr Phe Arg Arg Glu Thr
    50   55   60
Thr Lys Arg Pro Ser Leu Lys Thr Gly Arg Lys His Lys Arg His Leu
65   70   75   80
Val Leu Ala Ala Cys Gln Gln Gln Ser Thr Val Glu Cys Phe Ala Phe
                85   90   95
Gly Ile Ser Gly Val Gln Lys Tyr Thr Arg Ala Leu His Asp Ser Ser
            100   105   110
Ile Thr Gly Ile Ser Pro Ile Thr Glu Tyr Leu Ala Ser Leu Ser Thr
        115   120   125
Tyr Asn Asp Gln Ser Ile Thr Phe Ala Leu Glu Asp Glu Ser Tyr Glu
    130   135   140
Ile Tyr Val Glu Asp Leu Lys Lys Asp Glu Lys Lys Asp Lys Val Leu
145   150   155   160
Leu Ser Tyr Tyr Glu Ser Gln His Pro Ser Asn Glu Ser Gly Asp Gly
            165   170   175
Val Asp Gly Lys Met Leu Met Val Thr Leu Ser Pro Thr Lys Asp Phe
            180   185   190
Trp Leu His Ala Asn Asn Lys Glu His Ser Val Glu Leu His Lys Cys
        195   200   205
Glu Lys Pro Leu Pro Asp Gln Ala Phe Phe Val Leu His Asn Met His
    210   215   220
Ser Asn Cys Val Ser Phe Glu Cys Lys Thr Asp Pro Gly Val Phe Ile
225   230   235   240
Gly Val Lys Asp Asn His Leu Ala Leu Ile Lys Val Asp Ser Ser Glu
            245   250   255
Asn Leu Cys Thr Glu Asn Ile Leu Phe Lys Leu Ser Glu Thr
            260   265   270

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<212> PRT
<213> Mus musculus

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Arg Ser Gln Gln Lys Thr Lys Glu Phe Cys His Val Tyr Cys Met Arg
            35   40   45
Leu Arg Ser Gly Leu Thr Ile Arg Lys Glu Thr Ser Tyr Phe Arg Lys
    50   55   60
Glu Pro Thr Lys Arg Tyr Ser Leu Lys Ser Gly Thr Lys His Glu Glu
65   70   75   80
Asn Phe Ser Ala Tyr Pro Arg Asp Ser Arg Lys Arg Ser Leu Leu Gly
            85   90   95
Ser Ile Gln Ala Phe Ala Ala Ser Val Asp Thr Leu Ser Ile Gln Gly
            100   105   110
Thr Ser Leu Leu Thr Gln Ser Pro Ala Ser Leu Ser Thr Tyr Asn Asp
        115   120   125

-4-

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Asp Asp Ser Gly Lys Asp Gln Glu Gln Asp Gln Val Leu Leu Arg Tyr
145             150                 155                 160
Tyr Glu Ser Pro Cys Pro Ala Ser Gln Ser Gly Asp Gly Val Asp Gly
                165             170                 175
Lys Lys Leu Met Val Asn Met Ser Pro Ile Lys Asp Thr Asp Ile Trp
            180             185                 190
Leu His Ala Asn Asp Lys Asp Tyr Ser Val Glu Leu Gln Arg Gly Asp
        195                 200                 205
Val Ser Pro Pro Glu Gln Ala Phe Phe Val Leu His Lys Lys Ser Ser
    210             215                 220
Asp Phe Val Ser Phe Glu Cys Lys Asn Leu Pro Gly Thr Tyr Ile Gly
225             230                 235                 240
Val Lys Asp Asn Gln Leu Ala Leu Val Glu Glu Lys Asp Glu Ser Cys
            245                 250                 255
Asn Asn Ile Met Phe Lys Leu Ser Lys Ile
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<212> PRT
<213> Canis familiaris

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Lys Pro Glu Gly Val Cys Gln Met Tyr Phe Met Gln Leu Arg Ser Gly
        35                  40                  45
Leu Ile Ile Glu Lys Thr Ser Cys Tyr Phe Arg Lys Glu Ile Thr Lys
    50                  55                  60
Arg Tyr Ser Pro Arg Thr Ala Glu Lys Cys Arg Lys Gln Cys Leu Val
65                  70                  75                  80
Phe Thr Ala Cys His Gln Gln Leu Asn Lys Asp Phe Thr Ser Asp Val
            85                  90                  95
Pro Met Leu Gln Lys Cys Phe Gly Arg Ala Asn Val Pro Ser Ile Gln
            100                 105                 110
Glu Tyr Ser Ala Ser Leu Ser Thr Tyr Asn Asp Gln Ser Ile Thr Phe
        115                 120                 125
Val Phe Glu Asp Gly Ser Tyr Glu Ile Tyr Val Glu Asp Leu Arg Lys
    130             135                 140
Gly Gln Glu Lys Asp Lys Val Leu Phe Arg Tyr Tyr Asp Ser Gln Ser
145             150                 155                 160
Pro Ser His Glu Thr Gly Asp Asp Val Asp Gly Gln Thr Leu Leu Val
                165             170                 175
Asn Leu Ser Pro Thr Lys Asp Lys Asp Phe Leu Leu His Ala Asn Asn
            180             185                 190
Glu Glu His Ser Val Glu Leu Gln Lys Cys Glu Asn Gln Leu Pro Asp
        195                 200                 205
Gln Ala Phe Phe Leu Leu His Arg Lys Ser Ser Glu Cys Val Ser Phe
    210             215                 220
Glu Cys Lys Asn Asn Pro Gly Val Phe Ile Gly Val Lys Asp Asn His
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Leu Ala Leu Ile Lys Val Gly Asp Gln Thr Lys Asp Ser Tyr Ile Glu
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<212> DNA
<213> Homo sapiens

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<223> n = A,T,C or G


<221> misc_feature
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<223> n = A,T,C or G
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<400> 29
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<210> 30
<211> 16
<212> DNA
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```
<213> Artificial Sequence

<220>
<223> primer

<400> 30
ggtcagttgg atttgt                                              16

<210> 31
<211> 16
<212> DNA
<213> Artificial Sequence

<220>
<223> primer

<400> 31
ggtcagttgg atttgc                                              16

<210> 32
<211> 16
<212> DNA
<213> Artificial Sequence

<220>
<223> primer

<400> 32
tgctgctcct gctgac                                              16

<210> 33
<211> 16
<212> DNA
<213> Artificial Sequence

<220>
<223> primer

<400> 33
gctaccactt ccacct                                              16

<210> 34
<211> 18
<212> DNA
<213> Artificial Sequence

<220>
<223> primer

<400> 34
ccagatgcaa tcaatgcc                                            18

<210> 35
<211> 17
<212> DNA
<213> Artificial Sequence

<220>
<223> primer

<400> 35
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ctgaacccac ttctgct   17

<210> 36
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> primer

<400> 36
gaatactgaa aaatgaagcc   20

<210> 37
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<223> primer

<400> 37
gactcacagg tttccatcaa c   21

<210> 38
<211> 107
<212> PRT
<213> Homo sapiens

<400> 38
Met Ala Arg Ala Ala Leu Ser Ala Ala Pro Ser Asn Pro Arg Leu Leu
1   5   10   15
Arg Val Ala Leu Leu Leu Leu Leu Val Ala Ala Gly Arg Arg Ala
            20   25   30
Ala Gly Ala Ser Val Ala Thr Glu Leu Arg Cys Gln Cys Leu Gln Thr
        35   40   45
Leu Gln Gly Ile His Pro Lys Asn Ile Gln Ser Val Asn Val Lys Ser
    50   55   60
Pro Gly Pro His Cys Ala Gln Thr Glu Val Ile Ala Thr Leu Lys Asn
65   70   75   80
Gly Arg Lys Ala Cys Leu Asn Pro Ala Ser Pro Ile Val Lys Lys Ile
                85   90   95
Ile Glu Lys Met Leu Asn Ser Asp Lys Ser Asn
                100   105

<210> 39
<211> 1103
<212> DNA
<213> Homo sapiens

<400> 39
cacagagccc gggccgcagg cacctcctcg ccagctcttc cgctcctctc acagccgcca 60
gacccgcctg ctgagcccca tggcccgcgc tgctctctcc gccgccccca gcaatccccg 120
gctcctgcga gtggcactgc tgctcctgct cctggtagcc gctggccggc gcgcagcagg 180
agcgtccgtg gccactgaac tgcgctgcca gtgcttgcag accctgcagg gaattcaccc 240
caagaacatc caaagtgtga acgtgaagtc ccccggaccc cactgcgccc aaaccgaagt 300
catagccaca ctcaagaatg ggcggaaagc ttgcctcaat cctgcatccc ccatagttaa 360
gaaaatcatc gaaaagatgc tgaacagtga caaatccaac tgaccagaag ggaggaggaa 420
gctcactggt ggctgttcct gaaggaggcc ctgcccttat aggaacagaa gaggaaagag 480
agacacagct gcagaggcca cctggattgt gcctaatgtg tttgagcatc gcttaggaga 540

```
agtcttctat ttatttattt attcattagt tttgaagatt ctatgttaat attttaggtg 600
taaaataatt aagggtatga ttaactctac ctgcacactg tcctattata ttcattcttt 660
ttgaaatgtc aaccccaagt tagttcaatc tggattcata tttaatttga aggtagaatg 720
ttttcaaatg ttctccagtc attatgttaa tatttctgag gagcctgcaa catgccagcc 780
actgtgatag aggctggcgg atccaagcaa atggccaatg agatcattgt gaaggcaggg 840
gaatgtatgt gcacatctgt tttgtaactg tttagatgaa tgtcagttgt tatttattga 900
aatgatttca cagtgtgtgg tcaacatttc tcatgttgaa actttaagaa ctaaatgtt 960
ctaaatatcc cttggacatt ttatgtcttt cttgtaaggc atactgcctt gtttaatggt 1020
agttttacag tgtttctggc ttagaacaaa ggggcttaat tattgatgtt ttcatagaga 1080
atataaaaat aaagcactta tag                                      1103
```

<210> 40
<211> 114
<212> PRT
<213> Homo sapiens

<400> 40
```
Met Ser Leu Pro Ser Ser Arg Ala Ala Arg Val Pro Gly Pro Ser Gly
1               5                   10                  15
Ser Leu Cys Ala Leu Leu Ala Leu Leu Leu Leu Leu Thr Pro Pro Gly
            20                  25                  30
Pro Leu Ala Ser Ala Gly Pro Val Ser Ala Val Leu Thr Glu Leu Arg
        35                  40                  45
Cys Thr Cys Leu Arg Val Thr Leu Arg Val Asn Pro Lys Thr Ile Gly
    50                  55                  60
Lys Leu Gln Val Phe Pro Ala Gly Pro Gln Cys Ser Lys Val Glu Val
65                  70                  75                  80
Val Ala Ser Leu Lys Asn Gly Lys Gln Val Cys Leu Asp Pro Glu Ala
                85                  90                  95
Pro Phe Leu Lys Lys Val Ile Gln Lys Ile Leu Asp Ser Gly Asn Lys
            100                 105                 110
Lys Asn
```

<210> 41
<211> 1547
<212> DNA
<213> Homo sapiens

<400> 41
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ggcacgagcc agtctccgcg cctccaccca gctcaggaac ccgcgaaccc tctcttgacc 60
actatgagcc tcccgtccag ccgcgcgggc cgtgtcccgg gtccttcggg ctccttgtgc 120
gcgctgctcg cgctgctgct cctgctgacg ccgccggggc ccctcgccag cgctggtcct 180
gtctctgctg tgctgacaga gctgcgttgc acttgtttac gcgttacgct gagagtaaac 240
cccaaaacga ttggtaaact gcaggtgttc cccgcaggcc cgcagtgctc caaggtggaa 300
gtggtagcct ccctgaagaa cgggaagcaa gtttgtctgg acccggaagc cccttttcta 360
aagaaagtca tccagaaaat tttggacagt ggaaacaaga aaactgagt aacaaaaag 420
accatgcatc ataaaattgc ccagtcttca gcggagcagt tttctggaga tccctggacc 480
cagtaagaat aagaaggaag ggttggtttt tttccatttt ctacatggat tccctacttt 540
gaagagtgtg ggggaaagcc tacgcttctc cctgaagttt acagctcagc taatgaagta 600
ctaatatagt atttccacta tttactgtta ttttacctga taagttattg aacccttgg 660
caattgacca tattgtgagc aaagaatcac tggttattag tctttcaatg aatattgaat 720
atttcgtatg gaaataatgt tttattagtg tgctgttgag ggaggtatcc tgttgttctt 780
actcactctt ctcataaaat aggaaatatt ttagttctgt tttcttgggg aatatgttac 840
tctttaccct aggatgctat ttaagttatt ctgtattaga acactgggtg tgtcataccg 900
ttatctgtgc agaatatatt tccttattca gaatttctaa aaatttaagt tctgtaaggg 960
ctaatatatt ctcttcctat ggtttttagat gtttgatgtc ttcttagtat ggcataatgt 1020
catgatttac tcattaaact ttgattttgt atgctatttt ttcactatag gatgactata 1080
attctggtca ctaaatatac actttagata gatgaagaag cccaaaaaca gataaattcc 1140
```
```
                                                              1200
```

```
tgattgctaa tttacataga aatgtattct cttggttttt taaataaaag caaaattaac 1260
aatgatctgt gctctgcaaa gttttgaaaa tatatttgaa caatttgaat ataaattcat 1320
catttagtcc tcaaaatata tacagcattg ctaagatttt cagatatcta ttgtggatct 1380
tttaaaggtt ttgaccattt tgttatgagg aattatacat gtatcacatt cactatatta 1440
aaattgcact tttatttttt cctgtgtgtc atgttggttt ttggtacttg tattgtcatt 1500
tggagaaaca ataaagatt tctaaaccaa aaaaaaaaaa aaaaaaa          1547
```

```
<210> 42
<211> 99
<212> PRT
<213> Homo sapiens

<400> 42
Met Thr Ser Lys Leu Ala Val Ala Leu Leu Ala Ala Phe Leu Ile Ser
1               5                   10                  15
Ala Ala Leu Cys Glu Gly Ala Val Leu Pro Arg Ser Ala Lys Glu Leu
            20                  25                  30
Arg Cys Gln Cys Ile Lys Thr Tyr Ser Lys Pro Phe His Pro Lys Phe
            35                  40                  45
Ile Lys Glu Leu Arg Val Ile Glu Ser Gly Pro His Cys Ala Asn Thr
        50                  55                  60
Glu Ile Ile Val Lys Leu Ser Asp Gly Arg Glu Leu Cys Leu Asp Pro
65                  70                  75                  80
Lys Glu Asn Trp Val Gln Arg Val Val Glu Lys Phe Leu Lys Arg Ala
                85                  90                  95
Glu Asn Ser
```

```
<210> 43
<211> 1639
<212> DNA
<213> Homo sapiens

<400> 43
acaaactttc agagacagca gagcacacaa gcttctagga caagagccag gaagaaacca 60
ccggaaggaa ccatctcact gtgtgtaaac atgacttcca agctggccgt ggctctcttg 120
gcagccttcc tgatttctgc agctctgtgt gaaggtgcag ttttgccaag gagtgctaaa 180
gaacttagat gtcagtgcat aaagacatac tccaaacctt tccaccccaa atttatcaaa 240
gaactgagag tgattgagag tggaccacac tgcgccaaca cagaaattat tgtaaagctt 300
tctgatggaa gagagctctg tctggacccc aaggaaaact gggtgcagag ggttgtggag 360
aagttttga agagggctga gaattcataa aaaaattcat tctctgtggt atccaagaat 420
cagtgaagat gccagtgaaa cttcaagcaa atctacttca acacttcatg tattgtgtgg 480
gtctgttgta gggttgccag atgcaataca agattcctgg ttaaatttga atttcagtaa 540
acaatgaata gttttcatt gtaccatgaa atatccagaa catacttata tgtaaagtat 600
tatttatttg aatctacaaa aaacaacaaa taatttttga atataaggat tttcctagat 660
attgcacggg agaatataca aatagcaaaa ttgggccaag gccaagaga atatccgaac 720
tttaatttca ggaattgaat gggtttgcta gaatgtgata tttgaagcat cacataaaaa 780
tgatgggaca ataaattttg ccataaagtc aaatttagct ggaaatcctg gattttttc 840
tgttaaatct ggcaaccctа gtctgctagc caggatccac aagtccttgt tccactgtgc 900
cttggtttct cctttatttc taagtggaaa aagtattagc caccatctta cctcacagtg 960
atgttgtgag gacatgtgga agcactttaa gttttttcat cataacataa attattttca 1020
agtgtaactt attaacctat ttattattta tgtatttatt taagcatcaa atatttgtgc 1080
aagaatttgg aaaaatagaa gatgaatcat tgattgaata gttataaaga tgttatagta 1140
aatttatttt attttagata ttaaatgatg ttttattaga taaatttcaa tcagggtttt 1200
tagattaaac aaacaaacaa ttgggtaccc agttaaattt tcatttcaga taaacaacaa 1260
ataatttttt agtataagta cattattgtt tatctgaaat tttaattgaa ctaacaatcc 1320
tagtttgata ctcccagtct tgtcattgcc agctgtgttg gtagtgctgt gttgaattac 1380
ggaataatga gttagaacta ttaaaacagc caaaactcca cagtcaatat tagtaatttc 1440
ttgctggttg aaacttgttt attatgtaca aatagattct tataatatta tttaaatgac 1500
tgcatttttа aatacaaggc tttatatttt taactttaag atgtttttat gtgctctcca 1560
```

```
aatttttttt actgtttctg attgtatgga aatataaaag taaatatgaa acatttaaaa 1620
tataatttgt tgtcaaagt                                                 1639
```

<210> 44
<211> 99
<212> PRT
<213> Homo sapiens

<400> 44

```
Met Lys Val Ser Ala Ala Leu Leu Cys Leu Leu Leu Ile Ala Ala Thr
1               5                   10                  15
Phe Ile Pro Gln Gly Leu Ala Gln Pro Asp Ala Ile Asn Ala Pro Val
            20                  25                  30
Thr Cys Cys Tyr Asn Phe Thr Asn Arg Lys Ile Ser Val Gln Arg Leu
        35                  40                  45
Ala Ser Tyr Arg Arg Ile Thr Ser Ser Lys Cys Pro Lys Glu Ala Val
    50                  55                  60
Ile Phe Lys Thr Ile Val Ala Lys Glu Ile Cys Ala Asp Pro Lys Gln
65                  70                  75                  80
Lys Trp Val Gln Asp Ser Met Asp His Leu Asp Lys Gln Thr Gln Thr
                85                  90                  95
Pro Lys Thr
```

<210> 45
<211> 757
<212> DNA
<213> Homo sapiens

<400> 45

```
ggaaccgaga ggctgagact aacccagaaa catccaattc tcaaactgaa gctcgcactc 60
tcgcctccag catgaaagtc tctgccgccc ttctgtgcct gctgctcata gcagccacct 120
tcattcccca agggctcgct cagccagatg caatcaatgc cccagtcacc tgctgttata 180
acttcaccaa taggaagatc tcagtgcaga ggctcgcgag ctatagaaga atcaccagca 240
gcaagtgtcc caaagaagct gtgatcttca agaccattgt ggccaaggag atctgtgctg 300
accccaagca gaagtgggtt caggattcca tggaccacct ggacaagcaa acccaaactc 360
cgaagacttg aacactcact ccacaaccca agaatctgca gctaacttat tttcccctag 420
ctttccccag acaccctgtt ttattttatt ataatgaatt ttgtttgttg atgtgaaaca 480
ttatgcctta agtaatgtta attcttattt aagttattga tgttttaagt ttatctttca 540
tggtactagt gtttttttaga tacagagact tggggaaatt gctttttcctc ttgaaccaca 600
gttctacccc tgggatgttt tgagggtctt tgcaagaatc attaatacaa agaatttttt 660
ttaacattcc aatgcattgc taaaatatta ttgtggaaat gaatattttg taactattac 720
accaaataaa tatattttg tacaaaaaaa aaaaaaa                            757
```

<210> 46
<211> 107
<212> PRT
<213> Homo sapiens

<400> 46

```
Met Ala Arg Ala Thr Leu Ser Ala Ala Pro Ser Asn Pro Arg Leu Leu
1               5                   10                  15
Arg Val Ala Leu Leu Leu Leu Leu Val Ala Ala Ser Arg Arg Ala
            20                  25                  30
Ala Gly Ala Pro Leu Ala Thr Glu Leu Arg Cys Gln Cys Leu Gln Thr
        35                  40                  45
Leu Gln Gly Ile His Leu Lys Asn Ile Gln Ser Val Lys Val Lys Ser
    50                  55                  60
Pro Gly Pro His Cys Ala Gln Thr Glu Val Ile Ala Thr Leu Lys Asn
65                  70                  75                  80
```

```
Gly Gln Lys Ala Cys Leu Asn Pro Ala Ser Pro Met Val Lys Lys Ile
                 85                  90                  95
Ile Glu Lys Met Leu Lys Asn Gly Lys Ser Asn
            100                 105
```

<210> 47
<211> 1110
<212> DNA
<213> Homo sapiens

<400> 47
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gacagagccc gggccacgga gctccttgcc agctctcctc ctcgcacagc cgctcgaacc 60
gcctgctgag ccccatggcc cgcgccacgc tctccgccgc ccccagcaat ccccggctcc 120
tgcgggtggc gctgctgctc ctgctcctgg tggccgccag ccggcgcgca gcaggagcgc 180
ccctggccac tgaactgcgc tgccagtgct tgcagaccct gcagggaatt cacctcaaga 240
acatccaaag tgtgaaggtg aagtccccc g accccactg cgcccaaacc gaagtcatag 300
ccacactcaa gaatgggcag aaagcttgtc tcaaccccgc atcgcccatg gttaagaaaa 360
tcatcgaaaa gatgctgaaa aatggcaaat ccaactgacc agaaggaagg aggaagctta 420
ttggtggctg ttcctgaagg aggccctgcc ttacaggaac agaagaggaa agagagacac 480
agctgcagag gccacctggc ttgcgcctaa tgtgtttgag catacttagg agaagtcttc 540
tatttattta tttatttatt tatttgtttg ttttagaaga ttctatgtta atattttatg 600
tgtaaaataa ggttatgatt gaatctactt gcacactctc ccattatatt tattgtttat 660
tttaggtcaa acccaagtta gttcaatcct gattcatatt taatttgaag atagaaggtt 720
tgcagatatt ctctagtcat ttgttaatat ttcttcgtga tgacatatca catgtcagcc 780
actgtgatag aggctgagga atccaagaaa atggccagta agatcaatgt gacggcaggg 840
aaatgtatgt gtgtctattt tgtaactgta aagatgaatg tcagttgtta tttattgaaa 900
tgatttcaca gtgtgtggtc aacatttctc atgttgaagc tttaagaact aaaatgttct 960
aaatatccct tggcatttta tgtctttctt gtaagatact gccttgttta atgttaatta 1020
tgcagtgttt ccctctgtgt tagagcagag aggtttcgat atttattgat gttttcacaa 1080
agaacaggaa aataaaatat ttaaaaatat 1110
```

<210> 48
<211> 532
<212> PRT
<213> Homo sapiens

<400> 48
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Met Ala Pro Ser Ser Pro Arg Pro Ala Leu Pro Ala Leu Leu Val Leu
  1               5                  10                  15
Leu Gly Ala Leu Phe Pro Gly Pro Gly Asn Ala Gln Thr Ser Val Ser
             20                  25                  30
Pro Ser Lys Val Ile Leu Pro Arg Gly Gly Ser Val Leu Val Thr Cys
         35                  40                  45
Ser Thr Ser Cys Asp Gln Pro Lys Leu Leu Gly Ile Glu Thr Pro Leu
     50                  55                  60
Pro Lys Lys Glu Leu Leu Leu Pro Gly Asn Asn Arg Lys Val Tyr Glu
 65              70                  75                  80
Leu Ser Asn Val Gln Glu Asp Ser Gln Pro Met Cys Tyr Ser Asn Cys
                 85                  90                  95
Pro Asp Gly Gln Ser Thr Ala Lys Thr Phe Leu Thr Val Tyr Trp Thr
            100                 105                 110
Pro Glu Arg Val Glu Leu Ala Pro Leu Pro Ser Trp Gln Pro Val Gly
        115                 120                 125
Lys Asn Leu Thr Leu Arg Cys Gln Val Glu Gly Gly Ala Pro Arg Ala
    130                 135                 140
Asn Leu Thr Val Val Leu Leu Arg Gly Glu Lys Glu Leu Lys Arg Glu
145                 150                 155                 160
Pro Ala Val Gly Glu Pro Ala Glu Val Thr Thr Thr Val Leu Val Arg
                165                 170                 175
Arg Asp His His Gly Ala Asn Phe Ser Cys Arg Thr Glu Leu Asp Leu
```

```
                  180                    185                    190
Arg Pro Gln Gly Leu Glu Leu Phe Glu Asn Thr Ser Ala Pro Tyr Gln
             195                    200                    205
Leu Gln Thr Phe Val Leu Pro Ala Thr Pro Pro Gln Leu Val Ser Pro
    210                    215                    220
Arg Val Leu Glu Val Asp Thr Gln Gly Thr Val Val Cys Ser Leu Asp
225                    230                    235                    240
Gly Leu Phe Pro Val Ser Glu Ala Gln Val His Leu Ala Leu Gly Asp
                  245                    250                    255
Gln Arg Leu Asn Pro Thr Val Thr Tyr Gly Asn Asp Ser Phe Ser Ala
             260                    265                    270
Lys Ala Ser Val Ser Val Thr Ala Glu Asp Glu Gly Thr Gln Arg Leu
             275                    280                    285
Thr Cys Ala Val Ile Leu Gly Asn Gln Ser Gln Glu Thr Leu Gln Thr
    290                    295                    300
Val Thr Ile Tyr Ser Phe Pro Ala Pro Asn Val Ile Leu Thr Lys Pro
305                    310                    315                    320
Glu Val Ser Glu Gly Thr Glu Val Thr Val Lys Cys Glu Ala His Pro
                  325                    330                    335
Arg Ala Lys Val Thr Leu Asn Gly Val Pro Ala Gln Pro Leu Gly Pro
             340                    345                    350
Arg Ala Gln Leu Leu Leu Lys Ala Thr Pro Glu Asp Asn Gly Arg Ser
             355                    360                    365
Phe Ser Cys Ser Ala Thr Leu Glu Val Ala Gly Gln Leu Ile His Lys
    370                    375                    380
Asn Gln Thr Arg Glu Leu Arg Val Leu Tyr Gly Pro Arg Leu Asp Glu
385                    390                    395                    400
Arg Asp Cys Pro Gly Asn Trp Thr Trp Pro Glu Asn Ser Gln Gln Thr
                  405                    410                    415
Pro Met Cys Gln Ala Trp Gly Asn Pro Leu Pro Glu Leu Lys Cys Leu
             420                    425                    430
Lys Asp Gly Thr Phe Pro Leu Pro Ile Gly Glu Ser Val Thr Val Thr
             435                    440                    445
Arg Asp Leu Glu Gly Thr Tyr Leu Cys Arg Ala Arg Ser Thr Gln Gly
    450                    455                    460
Glu Val Thr Arg Glu Val Thr Val Asn Val Leu Ser Pro Arg Tyr Glu
465                    470                    475                    480
Ile Val Ile Ile Thr Val Val Ala Ala Ala Val Ile Met Gly Thr Ala
                  485                    490                    495
Gly Leu Ser Thr Tyr Leu Tyr Asn Arg Gln Arg Lys Ile Lys Lys Tyr
             500                    505                    510
Arg Leu Gln Gln Ala Gln Lys Gly Thr Pro Met Lys Pro Asn Thr Gln
             515                    520                    525
Ala Thr Pro Pro
    530
```

```
<210> 49
<211> 2986
<212> DNA
<213> Homo sapiens

<400> 49
gcgccccagt cgacgctgag ctcctctgct actcagagtt gcaacctcag cctcgctatg 60
gctcccagca gcccccggcc cgcgctgccc gcactcctgg tcctgctcgg ggctctgttc 120
ccaggacctg gcaatgccca gacatctgtg tccccctcaa aagtcatcct gccccgggga 180
ggctccgtgc tggtgacatg cagcacctcc tgtgaccagc ccaagttgtt gggcatagag 240
accccgttgc ctaaaaagga gttgctcctg cctgggaaca accggaaggt gtatgaactg 300
agcaatgtgc aagaagatag ccaaccaatg tgctattcaa actgccctga tgggcagtca 360
acagctaaaa ccttcctcac cgtgtactgg actccagaac gggtggaact ggcacccctc 420
ccctcttggc agccagtggg caagaacctt accctacgct gccaggtgga gggtgggggca 480
```

```
ccccgggcca  acctcaccgt  ggtgctgctc  cgtggggaga  aggagctgaa  acgggagcca  540
gctgtggggg  agcccgctga  ggtcacgacc  acggtgctgg  tgaggagaga  tcaccatgga  600
gccaatttct  cgtgccgcac  tgaactggac  ctgcggcccc  aagggctgga  gctgtttgag  660
aacacctcgg  cccctacca   gctccagacc  tttgtcctgc  cagcgactcc  cccacaactt  720
gtcagccccc  gggtcctaga  ggtggacacg  caggggaccg  tggtctgttc  cctggacggg  780
ctgttcccag  tctcggaggc  ccaggtccac  ctggcactgg  gggaccagag  gttgaacccc  840
acagtcacct  atggcaacga  ctccttctcg  gccaaggcct  cagtcagtgt  gaccgcagag  900
gacgagggca  cccagcggct  gacgtgtgca  gtaatactgg  ggaaccagag  ccaggagaca  960
ctgcagacag  tgaccatcta  cagctttccg  gcgcccaacg  tgattctgac  gaagccagag  1020
gtctcagaag  ggaccgaggt  gacagtgaag  tgtgaggccc  accctagagc  caaggtgacg  1080
ctgaatgggg  ttccagccca  gccactgggc  ccgagggccc  agctcctgct  gaaggccacc  1140
ccagaggaca  acgggcgcag  cttctcctgc  tctgcaaccc  tggaggtggc  cggccagctt  1200
atacacaaga  accagacccg  ggagcttcgt  gtcctgtatg  gcccccgact  ggacgagagg  1260
gattgtccgg  gaaactggac  gtggccagaa  aattcccagc  agactccaat  gtgccaggct  1320
tgggggaacc  cattgcccga  gctcaagtgt  ctaaaggatg  gcactttccc  actgcccatc  1380
ggggaatcag  tgactgtcac  tcgagatctt  gagggcacct  acctctgtcg  ggccaggagc  1440
actcaagggg  aggtcacccg  cgaggtgacc  gtgaatgtgc  tctcccccg   gtatgagatt  1500
gtcatcatca  ctgtggtagc  agccgcagtc  ataatgggca  ctgcaggcct  cagcacgtac  1560
ctctataacc  gccagcggaa  gatcaagaaa  tacagactac  aacaggccca  aaaagggacc  1620
cccatgaaac  cgaacacaca  agccacgcct  ccctgaacct  atcccgggac  agggcctctt  1680
cctcggcctt  cccatattgg  tggcagtggt  gccacactga  acagagtgga  agacatatgc  1740
catgcagcta  cacctaccgg  ccctgggacg  ccggaggaca  gggcattgtc  ctcagtcaga  1800
tacaacagca  tttggggcca  tggtacctgc  acacctaaaa  cactaggcca  cgcatctgat  1860
ctgtagtcac  atgactaagc  caagaggaag  gagcaagact  caagacatga  ttgatggatg  1920
ttaaagtcta  gcctgatgag  aggggaagtg  gtgggggaga  catagcccca  ccatgaggac  1980
atacaactgg  gaaatactga  aacttgctgc  ctattgggta  tgctgaggcc  cacagactta  2040
cagaagaagt  ggccctccat  agacatgtgt  agcatcaaaa  cacaaaggcc  cacacttcct  2100
gacggatgcc  agcttgggca  ctgctgtcta  ctgaccccaa  cccttgatga  tatgtattta  2160·
ttcatttgtt  attttaccag  ctatttattg  agtgtctttt  atgtaggcta  aatgaacata  2220
ggtctctggc  ctcacggagc  tcccagtcca  tgtcacattc  aaggtcacca  ggtacagttg  2280
tacaggttgt  acactgcagg  agagtgcctg  gcaaaaagat  caaatggggc  tgggacttct  2340
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